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Didactics 2.0: A Pedagogical Analysis Of Gamification Theory From A Comparative Perspective With A Special View To The Components Of Learning

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Abstract

However the term gamification has swept over the horizon of management sciences like a comet in recent years, the scope of the development of the theory remained strictly attached to raise the level of engagement in the learning (Zichermann, 2011; Kapp, 2012) or purchasing (Bogost, 2011) process or define a new marketing tool to reach the customer of the twenty-first century (Zichermann, 2010). Unfortunately the theory has not been studied as a learning theory nor a complex pedagogical phenomena until now, despite many elements of gamification might also be interpreted as principles of a unique and innovative theoretical basis to address and handle the new generation of learners and interpret the components of the learning process. This article intends to study gamification as the 5th learning theory by making comparison with the behaviourist, cognitivist, constructivist and connectivist approaches along each element of the learning process. As the real value of the theories can only be judged by the following effects mainly based on the response to contemporary problems and challenges of society, the social, cultural, economic and technological environment must not be underestimated and should be taken into account from the beginning if the aim is to make grounds for a new finding, such as gamfication as a learning theory which is a completely new interpretation. So the first part of the article explains the social and cultural trends, which could be better addressed by the application of gamification theory in education than with the previous concepts. The second seeks to raise gamification among the learning theories, and the third makes suggestions to launch further research based on the new insights and frame some possible ways to the future application.

Keywords: Learning, learning theories.

Introduction:
Ready for the game

In the first decade of the twenty-first century a new generation often referred as Generation Z has started to enter to tertiary education which requires adaptive learning methods not only in colleges and universities, but also in the

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HR strategy of workplaces. The new traits of this generation have been previously connected to the theory of gamification by acknowledging the merits of the theory in handling the specific needs of the before mentioned social group (Fromann, 2012). Moreover the features of higher education itself came through significant changes in recent years. As it has been previously pointed out the increasing number of inter- and multidisciplinary programs and the grown scale of participation in international mobility programs cause specific learning situations which can be handled more effectively based on gamification theory (Bíró, 2013).

Members of the Generation Z use internet and social media often and securely as it was part of their life and socialization from the beginning (Horovitz, 2012). As these communication networks are being used naturally, the new learning theory can use this trait of the generation as the evaluation and reward system of gamification are strongly community-based and the value of each achievement could be influenced by the subjective evaluation of the group. Another major trait of the members of Generation Z is the decreased skill to pay attention (Fromann, 2012) which could also be addressed by gamification as the learning process is divided into small pieces and the motivation is also aimed to improve by small positive reinforcements similarly to the behaviourist concept.

The new learning theory

Gamification has more common elements with the behaviourist learning theory (superiority of positive reinforcements, small tasks step-by-step, immediate feedback, progressive challenges) than with all of the three other major concepts altogether, however it must be noted that gamification is not only an updated version of the system of B. F. Skinner. First of all, gamification as a learning theory uses community-based evaluation system and reinforcement which strongly differs from the previous theories except the connectivist concept. The second element is that gamification is capable of handling diversified learning paths, as the emphasis is on the small achievements, and not on the links between these achievements, so multiply paths can be constructed to reach the main goal based on the attitude, skills and other characteristics of the learners. This attribute of the theory should be appreciated more and more as the learning groups are getting increasingly diversified. The third but not least important element is that gamification considers the visual dimension of the learning process very important, especially the visualization of the advancement in the learning process and the chosen learning path.

The effective use of social networks, the community-based approach of evaluation and reward system is unambiguously parallel with the concept of connective learning theory (Siemens, 2004). Despite the scientific classification of this theory is not beyond dispute (Verhagen, 2006), this article referred this concept as the 4th learning theory and treats it equally as the behaviourist, cognitivist and constructivist approaches. Gamification and the connectivist approach also look at social networks as frames of great importance; however the two perspectives are completely different. Connectivist theorists handle social networks as not only frames, but actual living components of the learning process and define learning itself as connecting different nodes or spots of these networks. Gamification on contrary handles social networks as bases from which the strategy of community-based motivation and feedback process can be launched in order to be able to raise the level of engagement in the learning process for each participating individual. Probably it would not be an exaggeration to say that for connectivist learning theory the social network is a key element of the learning process, while for gamification the network is rather a supporting drive to reach higher motivational levels.

Constructivist learning theory states that the learning process is unique by the learner and the concrete situation as knowledge is constructed during the learning process (Murphy, 1997). Gamification theory looks at the learning process from two different points of view at the same time, which makes quite difficult to define the learning process in the theory. On one hand gamification uses individual perspective to study the advancement of learners and offer the best learning path to each of the learners based on their needs and qualities. On the other hand the performance-evaluation and the feedback are strongly community-based, which requires general, simple and schematic solutions in order to be able to handle diverse learners in the group with a single system. As the latter is responsible for increasing the motivation and the level of engagement in the learning process, it could be stated that a crucial part of the learning process is undoubtedly community-based.

As gamification does not have an explicit concept regarding the creation of knowledge, it is understandable that previously none of the authors classified it as a new learning theory. However, gamification obviously has a yet latent, not precisely defined notion from the creation of knowledge which could be recognised from the relevant concept of the learning process. Gamification establishes different learning paths or routes in order to be able to adapt to the traits of different learners which implies that learners and the way they learn are diverse. As different learning paths means different methods to acquire the aimed knowledge which could also be interpreted as different ways of creating knowledge, the perspective is between the simple, general formula of behaviourism and the

concept of cognitivism and constructivism which use a more sophisticated view treating the learning process as a result of unique, unrepeatable and situation-oriented phenomena. Regarding the nature of the knowledge, gamification uses an external view unlike cognitivism and constructivism, but similarly to the behaviourist and connectivist learning theory. In order to be able to proportion knowledge into small batches which is necessary to build up the learning plan or curriculum, knowledge must be external and for at least partway common for the learners.

Gamification views the learner as one of the most important actors in the learning process, as learners have to choose from the learning routes and compete against each other to reach higher levels or get more badges based on their motivation which could be either intrinsic or extrinsic. However the theory declares that the learning environment has to be shaped to use the extant traits and attitudes of the learners, it would be undoubtedly excessive to say that the teachers are only responsible for establishing the learning environment and the diverse learning paths and watch the learners taking the beaten track similarly to programmed or blended learning. The responsibility of the teacher is to foster higher level of engagement in the learning process and in the same time try to influence the motivation of the learners to move from extrinsic to intrinsic. Gamification must not be mistaken for programmed learning or computer-based learning, even though some of the interpretations suggest the latter only underlining the compatibility of the theory with the new technologies. The theory can also be used to reengineer traditional classroom education with a special view to the characteristics of learners, the routes of learning and the reward system whether we plan to change the learning content or not. The essence of gamification in not the technology, but the diverse learning environment and the system of decisions and rewards all aimed to increase motivation and reach higher level of engagement in the learning process (Kapp, 2012).

To sum up, it must be noted that regarding the components of learning gamification framed a new, innovative approach which roots in previous learning theories in some elements, and use a completely new perspective in others (see below).

1. Table. The Comparison of Learning Theories

Components of learning	Behaviourist learning theory	Cognitivist learning theory	Constructivist learning theory	Connectivist learning theory	Gamification
The learner	instinct-driven individual	conscious individual	conscious individual	conscious individual	conscious individual
Motivation	extrinsic	intrinsic	intrinsic	extrinsic	intrinsic
Knowledge	external	internal	internal	external	internal/external
The learning process	environment-driven	ad hoc personal processing	systematic personal processing	ad hoc network processing	systematic personal processing
The teaching focuses on	the environment and the behaviour of learners	the cognitive process of learners	the cognitive process of learners with a special view to prior knowledge	the dynamics of networks with a special view to knowledge-allocation	the environment and the cognitive process of learners
Engagement	individual	individual	individual	network-based	group-based
The learning path is guided by the	teacher	teacher	teacher	learner (discover different paths), and the teacher (choose one path)	teacher (establish different paths), and the learner (choose one path)
The attitude of teacher	active	active	reactive	reactive	proactive
The attitude of learner	reactive	reactive	active	proactive	proactive
Feedback	individual	individual	individual	network-based	group-based

As gamification addresses the contemporary pedagogical problems more effectively than the previous learning theories and has an extensive theoretical frame which covers the complete learning process with all relevant components, it must not be an exaggeration to define it as a new learning theory.

The future of learning sciences

Even though gamification offers solutions more adequate for the pedagogical needs of the new generation than other relevant theories, the scientific classification and the future of the concept is yet undecided. Gamification can either be seen as a new marketing tool, an innovative, community-based design layer or a method to reach higher level of engagement in the learning or purchasing process. This article not only intends to foster the classification of gamification into learning sciences, but suggests considering it as a new learning theory besides the behaviourist, cognitivist, constructivist and connectivist approaches.

Certainly the real value of gamification as learning theory could only be judged after the results of the first medium-term researches on the field using pedagogic and not management or marketing perspective. The author of this article intends and suggests launching research in two directions. Based on the new findings and the complex, schematic frame of gamification theory, now it is feasible to realise gamification projects, for instance in higher education environment. Research on this field may provide us empirical evidence that educational programmes using gamification as a theoretical basis can result in more effective learning and it may offers us solutions to increase the learners' motivation more easily and handle the characteristics of Generation Z more properly in the learning process. The other direction of the possible application is based on the idea of increasing the level of engagement and may influence the HR policies and the performance evaluation systems as well as the systems of carrier progression and the principles of the employee-employer relationships.

Gamification could either be one of the fashionable commonly used buzzwords using as a delphoi knife for a few years and then fade away as fast as it appeared, or shine as the new influential learning theory of the twenty-first century offering solutions for the pedagogic problems of the upcoming years. You decide.

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